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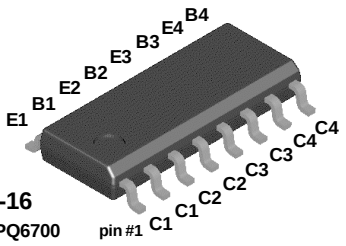
FAIRCHILD
SEMICONDUCTOR TM

MMPQ6700



SOIC-16
Mark: MMPQ6700 **pin #1**

TRANSISTOR TYPE	
C1 B1 E1 & C2 B2 E2	NPN
C3 B3 E3 & C4 B4 E4	PNP

Quad NPN & PNP General Purpose Amplifier

These complementary devices can be used in switches with collector currents of 10 µA to 100 mA. These devices are best used when space is the primary consideration. Sourced from Process 23 & 66. See 2N3904 (NPN) & 2N3906 (PNP) for characteristics.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	200	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3) All voltages (V) and currents (A) are negative polarity for PNP transistors.

Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		MMPQ6700	
P_D	Total Device Dissipation Derate above 25°C	1000 8.0	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Effective 4 Die Each Die	 125 240	 °C/W °C/W

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Quad NPN & PNP General Purpose Amplifier (continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 10 mA, I_B = 0	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 μA, I_E = 0	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 μA, I_C = 0	5.0		V
I_{CBO}	Collector-Cutoff Current	V_{CB} = 30 V, I_E = 0		50	nA
I_{EBO}	Emitter-Cutoff Current	V_{EB} = 4.0 V, I_C = 0		50	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 1.0 V, I_C = 0.1 mA V_{CE} = 1.0 V, I_C = 1.0 mA V_{CE} = 1.0 V, I_C = 10 mA	30 50 70		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 1.0 mA		0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 10 mA, I_B = 1.0 mA		0.90	V
SMALL SIGNAL CHARACTERISTICS					
C_{ob}	Output Capacitance	V_{CB} = 5.0 V, f = 100 kHz		4.5	pF
C_{ib}	Input Capacitance	V_{BE} = 0.5 V, f = 100 kHz **PNP** V_{BE} = 0.5 V, f = 100 kHz **NPN**		10 8.0	pF pF
f_T	Current-Gain Bandwidth Product	I_C = 10 mA, V_{CE} = 20 V, f = 100 MHz	200		MHz

*Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%

SOIC-16 Tape and Reel Data

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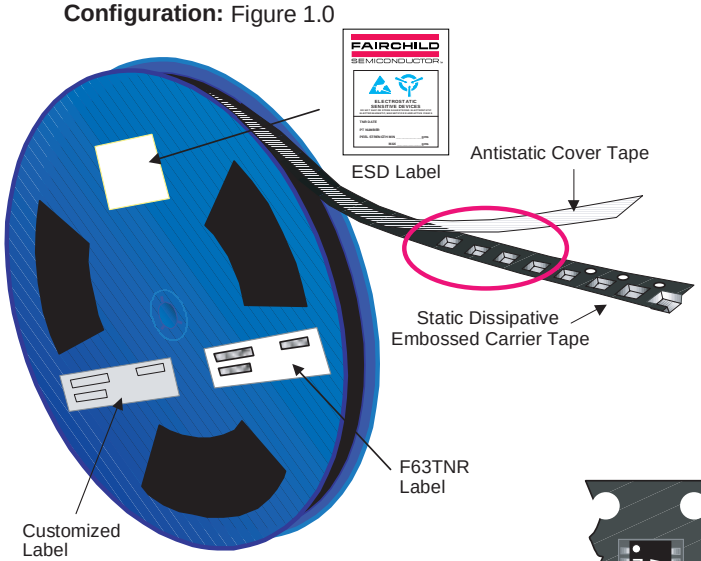
SOIC(16lds) Packaging Configuration: Figure 1.0

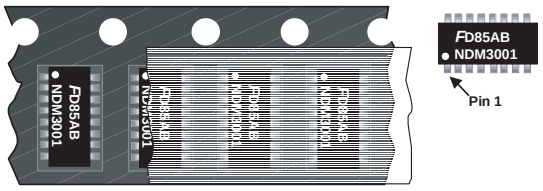


Packaging Description:

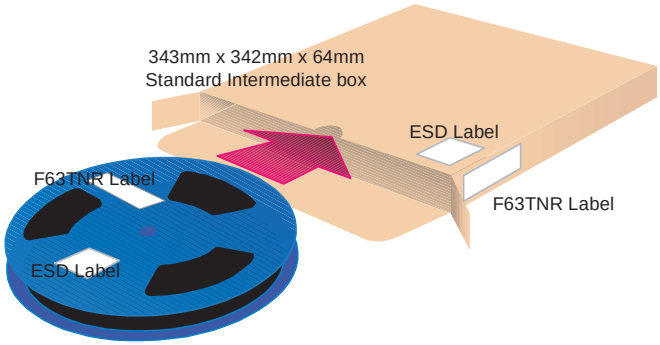
SOIC-16 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2,500 units per 13" or 330cm diameter reel. The reels are dark blue in color and is made of polystyrene plastic (anti-static coated). This and some other options are further described in the Packaging Information table.

These full reels are individually barcode labeled and placed inside a standard intermediate box (illustrated in figure 1.0) made of recyclable corrugated brown paper. One box contains two reels maximum. And these boxes are placed inside a barcode labeled shipping box which comes in different sizes depending on the number of parts shipped.

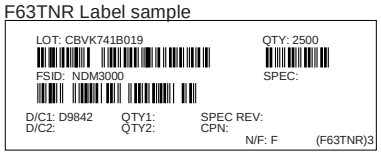
SOIC (16lds) Packaging Information		
Packaging Option	Standard (no flow code)	L86Z
Packaging type	TNR	Rail/Tube
Qty per Reel/Tube/Bag	2,500	45
Reel Size	13" Dia	-
Box Dimension (mm)	343x64x343	530x130x83
Max qty per Box	5,000	13,500
Weight per unit (gm)	0.1437	0.1437
Weight per Reel (kg)	0.7735	-
Note/Comments		



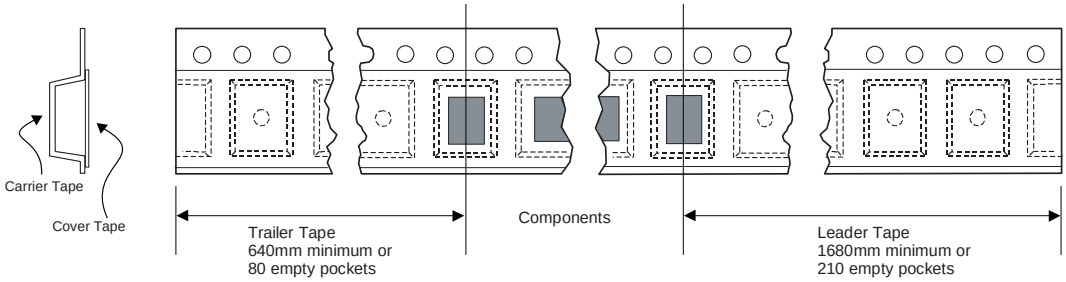
SOIC-16 Unit Orientation



F63TNR Label sample



SOIC(16lds) Tape Leader and Trailer Configuration: Figure 2.0



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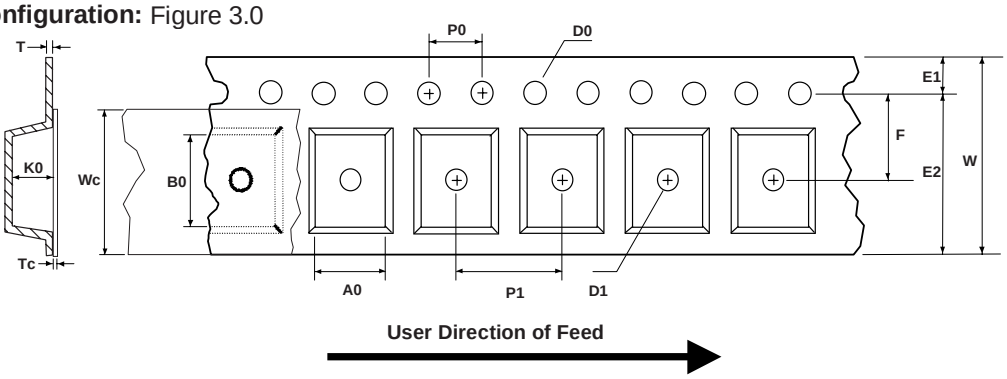
SOIC-16 Tape and Reel Data, continued

SOIC(16lds) Embossed Carrier Tape

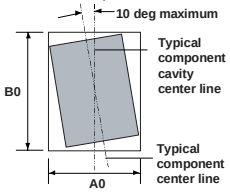
Configuration: Figure 3.0



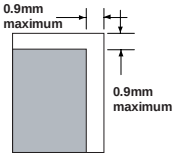
Dimensions are in millimeter														
Pkg type	**A0**	**B0**	**W**	**D0**	**D1**	**E1**	**E2**	**F**	**P1**	**P0**	**K0**	**T**	**Wc**	**Tc**
SOIC(16lds) (16mm)	6.60 +/-0.30	10.35 +/-0.25	16.0 +/-0.3	1.55 +/-0.05	1.60 +/-0.10	1.75 +/-0.10	14.25 min	7.50 +/-0.05	8.0 +/-0.1	4.0 +/-0.1	2.40 +/-0.40	0.450 +/-0.150	13.0 +/-0.3	0.06 +/-0.02

Notes: A0, B0, and K0 dimensions are determined with respect to the EIA/Jedec RS-481 rotational and lateral movement requirements (see sketches A, B, and C).

Sketch A (Side or Front Sectional View)
Component Rotation

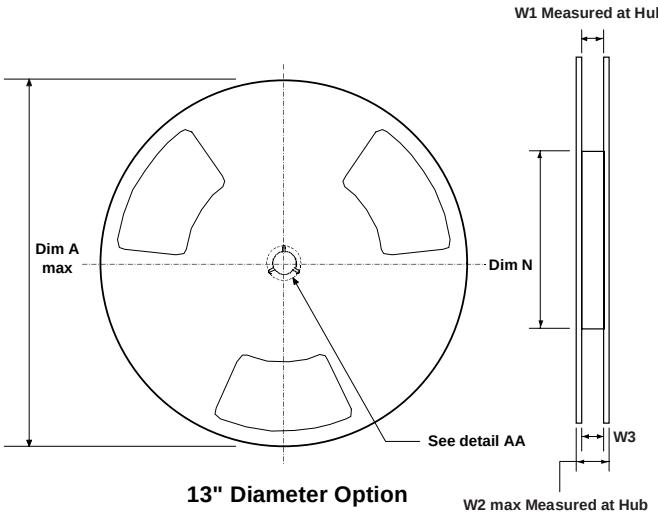


Sketch B (Top View)
Component Rotation



Sketch C (Top View)
Component lateral movement

SOIC(16lds) Reel Configuration: Figure 4.0



13" Diameter Option

Dimensions are in inches and millimeters									
Tape Size	**Reel Option**	**Dim A**	**Dim B**	**Dim C**	**Dim D**	**Dim N**	**Dim W1**	**Dim W2**	**Dim W3 (LSL-USL)**
16mm	13" Dia	13.00 330	0.059 1.5	512 +0.020/-0.008 13 +0.5/-0.2	0.795 20.2	4.00 100	0.646 +0.078/-0.000 16.4 +2/0	0.882 22.4	0.626 – 0.764 15.9 – 19.4

SOIC-16 Package Dimensions

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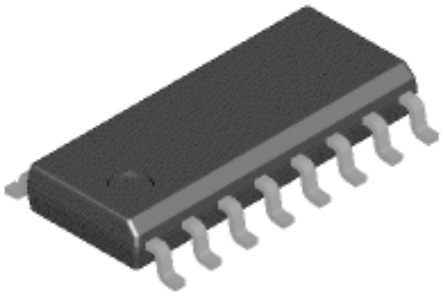
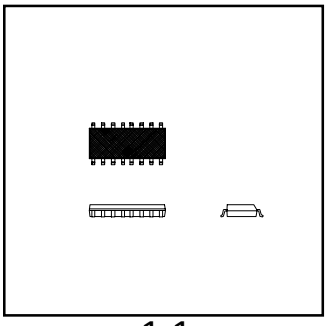
SOIC-16 (FS PKG Code S3)



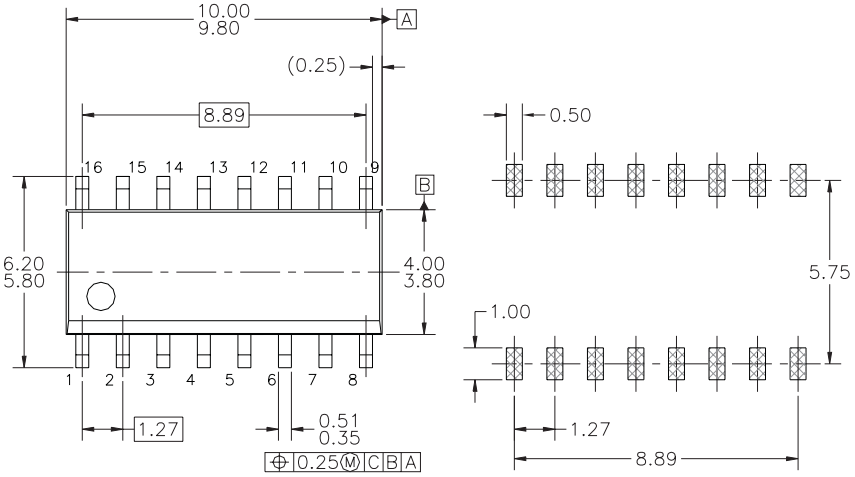


1:1

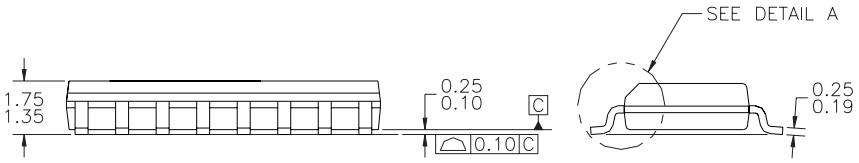
Scale 1:1 on letter size paper

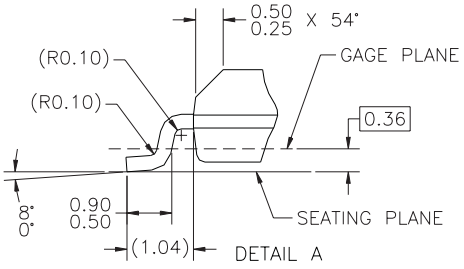
Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.1437



LAND PATTERN RECOMMENDATION





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